# Alfvénic Turbulence in Jupiter's Magnetosphere

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Jupiter's middle magnetosphere exhibits small scale magnetic field fluctuations on top of its strong background magnetic field. These fluctuating fields can be interpreted as weak magnetohydrodynamic turbulence. They are in essence Alfvén wave packages which propagate along the Jovian field lines and interact nonlinearly when counter-propagating packages intersect each other. The nonlinear interaction creates a turbulent cascade that transports energy to smaller scales. At kinetic length scales the energy is converted into particle acceleration to produce the main auroral oval on Jupiter and for heating of the magnetosphere. In our presentation, we discuss these processes in detail and show quantitative agreement with model values derived from our turbulence picture and observations of auroral and magnetospheric properties. Since the weak MHD turbulence creates a quasi steady-state source of Alfvén waves on varying spatial length scales, the Jovian magnetosphere might be well suited to study MI-coupling processes complementary to the Earth.